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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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43829 7590 06/22/2009 ROBERT M BAUER, ESQ. MacDonald Illig Jones & Britton LLP Suite 700 100 State Street Erie, PA 16507-1459			EXAMINER AHMED, SALMAN	
			ART UNIT 2419	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/937,949

Applicant(s)

SEBIRE ET AL.

Examiner

SALMAN AHMED

Art Unit

2419

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/8/2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 43-65, 69-81 and 83-110 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 43-65, 69-81 and 83-110 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/2/2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/C)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claims 43-65, 69-81 and 83-110 are pending.

Claims 43-65, 69-81 and 83-110 are rejected.

Abstract

1. The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

Specification

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

- (I) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Drawings

2. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "mobile station" and "base station" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure

is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claims 43, 59-62 and 76-77 are objected to because of the following informalities:

Regarding claims 43, 59-62 and 76-77, the phrase "adapted to" is not a positive recitation.

According to Interim Guidelines for Examination of Patent Application for Patent Subject Matter Eligibility, the grammar and intended meaning of terms used in a claim will dictate whether the language limits the claim scope. Language that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation. Hence the phrase "adapted to" is the language that may raise a question as to the limitation effect of the language in a claim.

Appropriate correction is required.

Claim 43 line 12, "date" should be changed to "data".

Claims 84, 90, 97, 101, 105 and 108 are objected to because of the following informalities:

Claims 84, 90, 97, 101, 105 and 108 utilize the language, "capable of". It is not clear as to the steps of limitations are actually being implemented by the mobile station or the mobile station merely "capable of" implementing the steps but not actually implementing them. It is not clear, whether, that capability is actually being implemented to perform the stated steps or merely saying that if programmed it will be "capable of" doing so. As such the use of the word "capable of" renders the claim unclear for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Appropriate correction is required.

Claims 55 and 74 uses claim language "relatively" and "relative" respectively, which does not limit the metes and bounds of the scope of the claimed limitation. Specifically, it does not specify "relatively" or "relative" to what.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claim 96 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 96 states the limitation "a half rate data channel is defined by the allocation to that channel of a time slot in alternate frames of the superframe" which contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 43, 45-65, 69-81 and 83-110 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dent (US Patent No. 6,084,865) in view of Tran et al. (US PAT 5517504), hereinafter referred to as Tran.

In regards to claims 43, 97, 101 and 105 Dent teaches a first station adapted to communicate with a second station over a wireless channel (see col. 1, lines 9-16), data being carried over the wireless channel in superframes (see Fig. 2), each superframe comprising a plurality of frames (see col. 5, lines 9-49) and each frame comprising a plurality of timeslots (see col. 12, lines 14-25); the system having: a first mode of operation in which a full rate data channel for circuit switched communications (see Fig. 11, col. 19, lines 58-66, PSTN means circuit switched communications) is defined by an allocation to that data channel (see col. 2, lines 8-27) of corresponding time slots in each frame (see col. 18, lines 44-60); a second mode of operation in which two half rate data channels for circuit switched, communications are defined by an allocation to each of said two data channels (see col. 2, lines 8-27) of an equal number of corresponding time slots of frames in each superframe (see col. 1, lines 53-61, col. 18, lines 44-60); a third mode of operation in which four quarter rate data channels for circuit switched communications are defined by the allocation to each of those data channels (see col. 2, lines 8-27) of an equal

number of corresponding time slots of frames in each superframe (see col. 6, lines 38-65, "when factor is 4, frame-length/slot is 32 means quarter rate $1/4$ " and col. 15, line 53-to-col. 16, line 7).

Dent does not explicitly teach a first mode of operation and a second mode of operation (cited in the claim as fourth mode and fifth mode respectively) is being done in a packet switched communication as well.

Tran in the same field of endeavor teaches (column 1 lines 35-45) subscriber units may attempt to increase efficiency for a wireless system that is primarily intended for circuit-switched traffic by using excess system capacity for packet-switched data services via similar subscriber unit equipment.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Dent's circuit-switched TDMA system/method by incorporating the concept of using packet switched data as taught by Tran. The motivation is that (as suggested by Tran, column 1 lines 35-45) Packet data as oppose to circuit switching data provides more network robustness due to path independence and the routers' ability to select alternative paths in the event of network node failure. Packet switching, therefore, allows for more efficient use of the network lines. Packet technology offers the option of billing the end user based on amount of data transmitted instead of connection time. If the end user's application has been designed to make efficient use of the air link, then the number of packets transmitted will be minimal. If each individual user's traffic is held to a minimum, then the service provider has effectively increased network capacity. Known work in one

field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

Claim 84 teaches all the limitations of claim 43 above, and thus are rejected using the same rationale.

Claim 90 teaches all the limitations of claim 43 above, and thus are rejected using the same rationale.

Regarding to claim 77. Dent teaches a communications system comprising a first station adapted to communicate with a second station over a wireless channel (see col. 1, lines 9-16), data being carried over the wireless channel in superframes, each superframe comprising a plurality of frames (see col. 5, lines 9-49) and each frame comprising a plurality of timeslots (see col. 12, lines 14-25); the system having: a first mode of operation in which a full rate data channel for switched communications is defined by the allocation to that data channel (see col. 2, lines 8-27) of corresponding time slots in each frame (see col. 18, lines 44-60); a second mode of operation in which two half rate data channels for switched communications are defined by the allocation to each of those data channels (see col. 2, lines 8-27) of an equal number of corresponding time slots of frames in each superframe (see col. 1, lines 53-61, col. 18, lines 44-60).

Dent does not explicitly teach a first mode of operation and a second mode of operation is being done in a packet switched communication.

Tran in the same field of endeavor teaches (column 1 lines 35-45) subscriber units may attempt to increase efficiency for a wireless TDMA system that is primarily intended for circuit-switched traffic by using excess system capacity for packet-switched data services via similar subscriber unit equipment.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Dent's circuit-switched TDMA system/method by incorporating the concept of using packet switched data as taught by Tran. The motivation is that (as suggested by Tran, column 1 lines 35-45) Packet data provides more network robustness due to path independence and the routers' ability to select alternative paths in the event of network node failure. Packet switching, therefore, allows for more efficient use of the network lines. Packet technology offers the option of billing the end user based on amount of data transmitted instead of connection time. If the end user's application has been designed to make efficient use of the air link, then the number of packets transmitted will be minimal. If each individual user's traffic is held to a minimum, then the service provider has effectively increased network capacity. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

Regarding to claim 62 Dent teaches a communication system comprising a first station adapted to communicate with a second station over a wireless channel (see col. 1, lines 9-16), data being carried over the wireless channel in superframes (see Fig.

2), each superframe comprising a plurality of frames (see col. 5, lines 9-49) and each frame comprising a plurality of timeslots (see col. 12, lines 14-25); the system having a mode of operation in which a data channel for circuit switched communications (see Fig. 11, col. 19, lines 58-66, PSTN means circuit switched communications) is defined by the allocation to that channel of corresponding time slots (see col. 2, lines 8-27) of some of the frames of each superframe, wherein the data channel for circuit switched communications is a half rate data channel (see col. 1, lines 53-61, col. 18, lines 44-60) and wherein half the number of slots are allocated to the data channel for packet-switched communications are allocated to the data channel for circuit switched communications (see col. 1, lines 53-61, col. 18, lines 44-60).

Dent does not explicitly teach using channel time slots as data channel for packet switched communications.

Tran in the same field of endeavor teaches (column 1 lines 35-45) subscriber units may attempt to increase efficiency for a wireless TDMA system that is primarily intended for circuit-switched traffic by using excess system capacity for packet-switched data services via similar subscriber unit equipment.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Dent's circuit-switched TDMA system/method by incorporating the concept of using packet switched data as taught by Tran. The motivation is that (as suggested by Tran, column 1 lines 35-45) Packet data provides more network robustness due to path independence and the routers' ability to select alternative paths in the event of network node failure. Packet switching, therefore,

allows for more efficient use of the network lines. Packet technology offers the option of billing the end user based on amount of data transmitted instead of connection time. If the end user's application has been designed to make efficient use of the air link, then the number of packets transmitted will be minimal. If each individual user's traffic is held to a minimum, then the service provider has effectively increased network capacity. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

Regarding to claim 44. Dent teaches a communication system as claimed in claim 43, wherein equal numbers of timeslots in each frame are allocated to the data channel (see col. 2, lines 8-27) for circuit switched communications and the data channel for packet switched communications (see col. 1, lines 53-61).

Regarding to claim 45. Dent teaches a communication system as claimed in claim 43, wherein half the number of slots are allocated to the data channel for packet switched communications are allocated to the data channel for circuit switched communications (see col. 1, lines 53-61, col. 18, lines 44-60).

Regarding to claim 46. Dent teaches a communication system as claimed in claim 43, wherein a quarter of the number of slots are allocated to the data channel (see col. 2, lines 8-27) for packet switched communications are allocated to the data channel for circuit switched communications (see col. 6, lines 38-65, "when factor is 4, frame-length/slot is 32 means quarter rate 4" and col. 15, line 53-to-col. 16, line 7).

Regarding to claim 47. Dent teaches a communication system as claimed in claim 43, wherein the data channel for circuit switched communications is a half rate data channel (see col. 1, lines 53-61, col. 18, lines 44-60).

Regarding to claim 48. Dent teaches a communication system as claimed in claim 43, wherein the data channel for circuit switched communications is a quarter rate data channel (see col. 6, lines 38-65, "when factor is 4, frame-length/slot is 32 means quarter rate $\frac{1}{4}$." and col. 15, line 53-to-col. 16, line 7).

Regarding to claim 49. Dent teaches a communication system as claimed in claim 43, wherein the data channel for packet switched communications (see Fig. 9, item "161 "means for packet switched communication) is a half rate data channel (see col. 1, lines 53-61, col. 18, lines 44-60).

Regarding to claim 50. Dent teaches a communication system as claimed in claim 43, wherein control data for control of the data channel for packet switched communications is carried by the data channel for circuit switched communications (see col.9, lines 1-16, and col. 19, lines 58-66).

Regarding to claim 51. Dent teaches a communication system as claimed in claim 51, wherein the control data is for control of transmission power and/or handover of the channel, link adaptation (see col. 17, lines 3-16).

Regarding to claim 52. Dent teaches a communication system as claimed in claim 51, wherein the control data comprises a fast associated control channel and/or a slow associated control channel (see col. 5, lines 10-49).

Regarding to claim 53. Dent teaches a communication system as claimed in claim 43, wherein the data channel for circuit switched communications is a conversational channel (see col. 5, lines 10-49, col. 14, lines 18-29, and col. 18, line 18-34).

Regarding to claim 54. Dent teaches a communication system as claimed in claim 43, wherein the data channel for circuit switched communications is a background channel (see col. 8, line 40-to-col. 9, line 16, and col. 12, lines 26-54).

Regarding to claims 55, 85, 91, 98, 102, 106 and 109 Dent teaches the data channel for packet switched communications is allocated time slots during periods (see col. 2, lines 8-27) when the data channel for circuit switched communications is relatively inactive (see col. 22, line 65-to-col. 23, line 24).

Regarding to claims 56, 86, 92, 99, 103, 107 and 110 Dent teaches the data channel for packet switched communications is allocated time slots (see col. 2, lines 8-27) during lulls in speech data being carried by means of the data channel for circuit switched communications (see col. 22, line 65-to-col. 23, line 24).

Regarding to claim 57. Dent teaches a communication system as claimed in claim 43, wherein the wireless channel (see col. 2, lines 8-27) comprises a circuit switched air-interface data being carried over said circuit switched air-interface (see Fig. 11, col. 2, lines 8-27) via circuit switched data and packet data (see Fig. 9, item "161" means for packet data).

Regarding to claim 58. Dent teaches a communication system as claimed in claim 58, wherein said circuit switched air interface (see Fig. 11, col. 2, lines 8-27) is

connectable to a packet switched core network (see Fig 9, item "161 "means for packet switched communication).

Regarding to claim 59. Dent teaches a communication system as claimed in claim 43, wherein the circuit switched channel is via a circuit switched core network of the communication system (see Fig. 11, col. 19, lines 58-66, PSTN means circuit switched communications).

Regarding to claim 60. Dent teaches a communication system as claimed in claim 43, wherein the packet switched channel is capable of operation via a packet switched core network of the communication system (see Fig. 9, item "161 "means for packet switched communication, col. 19, lines 58-66, and col. 21, lines 19-44).

Regarding to claim 61. Dent teaches a communication system as claimed in claim 43, wherein the circuit switched channel (see Fig. 11, col. 19, lines 58-66) is capable of operation via a packet switched core network and a circuit switched core network of the communication system (see Fig. 9, item "161 "means for packet switched communication col. 19, lines 58-66, and col. 21, lines 19-44).

Regarding to claim 63. Dent teaches a communication system as claimed in claim 63, wherein equal numbers of time slots in each frame are allocated to the data channel (see col. 2, lines 8-27) for circuit switched communications and the data channel for packet switched communications (see col. 1, lines 53-61).

Regarding to claim 64. Dent teaches a communication system as claimed in claim 63, wherein half the number of slots are allocated to the data channel (see col. 2,

lines 8-27) for packet switched communications are allocated to the data channel for circuit switched communications (see col. 1, lines 53-61, col. 18, lines 44-60).

Regarding to claim 65. Dent teaches a communication system as claimed in claim 63, wherein a quarter of the number of slots are allocated to the data channel (see col. 2, lines 8-27) for packet switched communications are allocated to the data channel for circuit switched communications (see col. 6, lines 38-65, "when factor is 4, frame-length/slot is 32 means quarter rate 1/4" and col. 15, line 53-to-col. 16, line 7).

Regarding to claim 66. Dent teaches a communication system as claimed in claim 63, wherein the data channel for circuit switched communications is a half rate data channel (see col. 1, lines 53-61, col. 18, lines 44-60).

Regarding to claim 67. Dent teaches a communication system as claimed in claim 63, wherein the data channel for circuit switched communications is a quarter rate data channel (see col. 6, lines 38-65, "when factor is 4, frame-length/slot is 32 means quarter rate 'h' and col. 15, line 53-to-col. 16, line 7).

Regarding to claim 70. Dent teaches a communication system as claimed in claim 63, wherein the data channel for packet switched communications is a half rate data channel (see col. 1, lines 53-61, col. 18, lines 44-60).

Regarding to claim 69. Dent teaches a communication system as claimed in claim 63, wherein control data for control of the data channel for packet switched communications is carried by the data channel for circuit switched communications (see col. 5, line 10-49).

Regarding to claim 70. Dent teaches a communication system as claimed in claim 63, wherein the control data is for control of transmission power and/or handover of the channel (see col. 17, lines 3-16).

Regarding to claim 71. Dent teaches a communication system as claimed in claim 70, wherein the control data comprises a fast access control channel and/or a slow access control channel (see col. 5, line 10-49).

Regarding to claim 72. Dent teaches a communication system as claimed in claim 63, wherein the data channel for circuit switched communications is a conversational channel (see col. 5, lines 10-49, col. 14, lines 18-29, and col. 18, line 18-34).

Regarding to claim 73. Dent teaches a communication system as claimed in claim 63, wherein the data channel for circuit switched communications is a background channel (see col. 8, line 40-to-col. 9, line 16, and col. 12, lines 26-54).

Regarding to claim 74. Dent teaches a communication system as claimed in claim 63, wherein the data channel for packet switched communications is allocated time slots during periods when the data channel for circuit switched communications is relatively inactive (see col. 22, line 65-to-col. 23, line 24).

Regarding to claim 75. Dent teaches a communication system as claimed in claim 75, wherein the data channel for packet switched communications is allocated time slots (see col. 2, lines 8-27) during lulls in speech data being carried by means of the data channel for circuit switched communications (see col. 22, line 65-to-col. 23, line 24).

Regarding to claim 76. Dent teaches a communication system as claimed in claim 63, wherein the circuit switched channel is via a circuit switched core network of the communication system (see Fig. 11, col. 19, lines 58-66, PSTN means circuit switched communications).

Regarding to claim 78. Dent teaches a communication system as claimed in claim 78, wherein each full or half rate data channel for packet switched communications is a streaming, interactive or background channel (see col. 8, line 40-to-col. 9, line 16, and col. 12, lines 26-54).

Regarding to claim 79. Dent teaches a communication system as claimed in claim 78, wherein each full, half or quarter rate data channel for circuit switched communications is a conversational channel (see col. 5, lines 10-49, col. 14, lines 18-29, and col. 18, line 18-34).

Regarding to claims 80, 87, 93, 100 and 104 Dent teaches system has a mode of operation in which said wireless channel comprises first and second sub-channels; said first sub-channel comprising a half rate data channel for circuit switched communication (see col. 9, line 17-to-col. 10, line 26; and said second sub-channel comprising a half rate data channel for packet switched communication (see col. 9, line 17-to-col. 10, line 26).

Regarding to claims 81, 88 and 94 Dent teaches system has a mode of operation in which said wireless channel comprises first, second, third and fourth sub-channels each comprising a quarter rate data channel for circuit switched

communication (see col. 6, lines 38-65, "when factor is 4, frame-length/slot is 32 means quarter rate $1/4$ " and col. 15, line 53-to-col. 16, line 7).

Regarding to claims 82, 89 and 95 Dent teaches system has a mode of operation in which said wireless channel comprises first, second and third sub-channels (see col. 9, line 17-to-col. 10, line 26); said first sub-channel comprising a quarter rate data channel for circuit switched communication (see col. 9, line 17-to-col. 10, line 26); said second sub-channel comprising a quarter rate data channel for circuit switched communication (see col. 9, line 17-to-col. 10, line 26, and col. 6, lines 38-65, and col. 15, line 53-to-col. 16, line 7); and said third sub-channel comprising a half rate data channel for packet switched communication (see col. 1, lines 53-61, col. 18, lines 44-60).

Regarding to claim 83 Dent teaches a communication system according to claim 78, wherein said system has a mode of operation in which said wireless channel comprises first, second and third sub-channels; said first sub-channel comprising a quarter rate data channel for circuit switched communication (see col. 9, line 17-to-col. 10, line 26); said second sub-channel comprising a quarter rate data channel for circuit switched communication (see col. 9, line 17-to-col. 10, line 26, and col. 6, lines 38-65, and col. 15, line 53-to-col. 16, line 7); and said third sub-channel comprising a half rate data channel for packet switched communication (see col. 1, lines 53-61, col. 18, lines 44-60).

4. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dent and Tran as applied to claim 43 above and further in view of Chang et al. (US PAT PUB 2001/0040883), hereinafter referred to as Chang.

In regards to claim 44, Dent and Tran teach a variable rate system as described in the rejections of claim 43 above.

Dent and Tran do not explicitly teach, time slots in each frame are allocated to the data channel for circuit switched communications and the data channel for packet switched communications.

Chang in the same field of endeavor teaches time slots in each frame being allocated to the data channel for circuit switched communications and the data channel for packet switched communications (section 0155-0156).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Dent and Tran's system/method by incorporating the concept of time slots in each frame being allocated to the data channel for circuit switched communications and the data channel for packet switched communications as taught by Chang. The motivation is that the ability to send both circuit switched data and packet switched data within same frame makes the system robust and enables efficient use of bandwidth. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

Dent, Tran and Chang do not teach allocating equal number of time slots being allocated for circuit switched and data switched communication.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Dent, Tran and Cheng's system/method by incorporating the concept of allocating equal number of time slots being allocated for circuit switched and data switched communication as any arbitrary number of time slots can be allocated for both packet and circuit switched communication based on network need, available resources and contracted quality of service; to make efficient use of the available bandwidth. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

5. Claims 43-65, 69-81 and 83-110 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dent in view of Chang et al. (US PAT PUB 2001/0040883), hereinafter referred to as Chang.

In regards to claims 43, 97, 101 and 105 Dent teaches a telecommunications system comprising a first station adapted to communicate with a second station over a wireless channel (see col. 1, lines 9-16), data being carried over the wireless channel in superframes (see Fig. 2), each superframe comprising a plurality of frames (see col. 5, lines 9-49) and each frame comprising a plurality of timeslots (see col. 12, lines 14-25); the system having: a first mode of operation in which a full rate data

channel for circuit switched communications (see Fig. 11, col. 19, lines 58-66, PSTN means circuit switched communications) is defined by an allocation to that data channel (see col. 2, lines 8-27) of corresponding time slots in each frame (see col. 18, lines 44-60); a second mode of operation in which two half rate data channels for circuit switched, communications are defined by an allocation to each of said two data channels (see col. 2, lines 8-27) of an equal number of corresponding time slots of frames in each superframe (see col. 1, lines 53-61, col. 18, lines 44-60); a third mode of operation in which four quarter rate data channels for circuit switched communications are defined by the allocation to each of those data channels (see col. 2, lines 8-27) of an equal number of corresponding time slots of frames in each superframe (see col. 6, lines 38-65, "when factor is 4, frame-length/slot is 32 means quarter rate 1/4" and col. 15, line 53-to-col. 16, line 7).

Dent does not explicitly teach a first mode of operation and a second mode of operation (cited in the claim as fourth mode and fifth mode respectively) is being done in a packet switched communication.

Chang in the same field of endeavor teaches interleaving of Both Half Rate and Full Rate Channels Suitable for Half Duplex Operation to GERAN (GSM EDGE (Enhanced General Packet Radio Service) Radio Access Network) (section 0051, GERAN is packet based).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Dent's system/method by incorporating the concept of using packet switched data at both Half Rate and Full Rate Channels as taught by

Chang. The motivation is that packet data provides more network robustness due to path independence and the routers' ability to select alternative paths in the event of network node failure. Packet switching, therefore, allows for more efficient use of the network lines. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

Claim 84 teaches all the limitations of claim 43 above, and thus are rejected using the same rationale.

Claim 90 teaches all the limitations of claim 43 above, and thus are rejected using the same rationale.

Regarding to claim 77. Dent teaches a communications system comprising a first station adapted to communicate with a second station over a wireless channel (see col. 1, lines 9-16), data being carried over the wireless channel in superframes, each superframe comprising a plurality of frames (see col. 5, lines 9-49) and each frame comprising a plurality of timeslots (see col. 12, lines 14-25); the system having: a first mode of operation in which a full rate data channel for switched communications is defined by the allocation to that data channel (see col. 2, lines 8-27) of corresponding time slots in each frame (see col. 18, lines 44-60); a second mode of operation in which two half rate data channels for switched communications are defined by the allocation to each of those data channels (see col. 2, lines 8-27) of an equal number of

corresponding time slots of frames in each superframe (see col. 1, lines 53-61, col. 18, lines 44-60).

Dent does not explicitly teach a first mode of operation and a second mode of operation is being done in a packet switched communication.

Chang in the same field of endeavor teaches interleaving of Both Half Rate and Full Rate Channels Suitable for Half Duplex Operation to GERAN (GSM EDGE (Enhanced General Packet Radio Service) Radio Access Network) (section 0051, GERAN is packet based).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Dent's system/method by incorporating the concept of using packet switched data at both Half Rate and Full Rate Channels as taught by Chang. The motivation is that packet data provides more network robustness due to path independence and the routers' ability to select alternative paths in the event of network node failure. Packet switching, therefore, allows for more efficient use of the network lines. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

Regarding to claim 62 Dent teaches a communication system comprising a first station adapted to communicate with a second station over a wireless channel (see col. 1, lines 9-16), data being carried over the wireless channel in superframes (see Fig. 2), each superframe comprising a plurality of frames (see col. 5, lines 9-49) and each

frame comprising a plurality of timeslots (see col. 12, lines 14-25); the system having a mode of operation in which a data channel for circuit switched communications (see Fig. 11, col. 19, lines 58-66, PSTN means circuit switched communications) is defined by the allocation to that channel of corresponding time slots (see col. 2, lines 8-27) of some of the frames of each superframe,

Dent does not explicitly teach using channel time slots as data channel for packet switched communications.

Chang in the same field of endeavor teaches interleaving of Both Half Rate and Full Rate Channels Suitable for Half Duplex Operation to GERAN (GSM EDGE (Enhanced General Packet Radio Service) Radio Access Network) (section 0051, GERAN is packet based).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Dent's system/method by incorporating the concept of using packet switched data at both Half Rate and Full Rate Channels as taught by Chang. The motivation is that packet data provides more network robustness due to path independence and the routers' ability to select alternative paths in the event of network node failure. Packet switching, therefore, allows for more efficient use of the network lines. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

Regarding to claim 44. Dent teaches a communication system as claimed in claim 43, wherein equal numbers of timeslots in each frame are allocated to the data channel (see col. 2, lines 8-27) for circuit switched communications and the data channel for packet switched communications (see col. 1, lines 53-61).

Regarding to claim 45. Dent teaches a communication system as claimed in claim 43, wherein half the number of slots are allocated to the data channel for packet: switched communications are allocated to the data channel for circuit switched communications (see col. 1, lines 53-61, col. 18, lines 44-60).

Regarding to claim 46. Dent teaches a communication system as claimed in claim 43, wherein a quarter of the number of slots are allocated to the data channel (see col. 2, lines 8-27) for packet switched communications are allocated to the data channel for circuit switched communications (see col. 6, lines 38-65, "when factor is 4, frame-length/slot is 32 means quarter rate 4" and col. 15, line 53-to-col. 16, line 7).

Regarding to claim 47. Dent teaches a communication system as claimed in claim 43, wherein the data channel for circuit switched communications is a half rate data channel (see col. 1, lines 53-61, col. 18, lines 44-60).

Regarding to claim 48. Dent teaches a communication system as claimed in claim 43, wherein the data channel for circuit switched communications is a quarter rate data channel (see col. 6, lines 38-65, "when factor is 4, frame-length/slot is 32 means quarter rate $\frac{1}{4}$." and col. 15, line 53-to-col. 16, line 7).

Regarding to claim 49. Dent teaches a communication system as claimed in claim 43, wherein the data channel for packet switched communications (see Fig. 9,

item "161 "means for packet switched communication) is a half rate data channel (see col. 1, lines 53-61, col. 18, lines 44-60).

Regarding to claim 50. Dent teaches a communication system as claimed in claim 43, wherein control data for control of the data channel for packet switched communications is carried by the data channel for circuit switched communications (see col.9, lines 1-16, and col. 19, lines 58-66).

Regarding to claim 51. Dent teaches a communication system as claimed in claim 51, wherein the control data is for control of transmission power and/or handover of the channel, link adaptation (see col. 17, lines 3-16).

Regarding to claim 52. Dent teaches a communication system as claimed in claim 51, wherein the control data comprises a fast associated control channel and/or a slow associated control channel (see col. 5, lines 10-49).

Regarding to claim 53. Dent teaches a communication system as claimed in claim 43, wherein the data channel for circuit switched communications is a conversational channel (see col. 5, lines 10-49, col. 14, lines 18-29, and col. 18, line 18-34).

Regarding to claim 54. Dent the data channel for circuit switched communications is a background channel (see col. 8, line 40-to-col. 9, line 16, and col. 12, lines 26-54).

Regarding to claims 55, 85, 91, 98, 102, 106 and 109 Dent teaches a communication system as claimed in claim 43, wherein the data channel for packet switched communications is allocated time slots during periods (see col. 2, lines 8-27)

when the data channel for circuit switched communications is relatively inactive (see col. 22, line 65-to-col. 23, line 24).

Regarding to claims 56, 86, 92, 99, 103, 107 and 110 Dent teaches the data channel for packet switched communications is allocated time slots (see col. 2, lines 8-27) during lulls in speech data being carried by means of the data channel for circuit switched communications (see col. 22, line 65-to-col. 23, line 24).

Regarding to claim 57. Dent teaches a communication system as claimed in claim 43, wherein the wireless channel (see col. 2, lines 8-27) comprises a circuit switched air-interface data being carried over said circuit switched air-interface (see Fig. 11, col. 2, lines 8-27) via circuit switched data and packet data (see Fig. 9, item "161 "means for packet data).

Regarding to claim 58. Dent teaches a communication system as claimed in claim 58, wherein said circuit switched air interface (see Fig. 11, col. 2, lines 8-27) is connectable to a packet switched core network (see Fig 9, item "161 "means for packet switched communication).

Regarding to claim 59. Dent teaches a communication system as claimed in claim 43, wherein the circuit switched channel is via a circuit switched core network of the communication system (see Fig. 11, col. 19, lines 58-66, PSTN means circuit switched communications).

Regarding to claim 60. Dent teaches a communication system as claimed in claim 43, wherein the packet switched channel is capable of operation via a packet

switched core network of the communication system (see Fig. 9, item "161 "means for packet switched communication, col. 19, lines 58-66, and col. 21, lines 19-44).

Regarding to claim 61. Dent teaches a communication system as claimed in claim 43, wherein the circuit switched channel (see Fig. 11, col. 19, lines 58-66) is capable of operation via a packet switched core network and a circuit switched core network of the communication system (see Fig. 9, item "161 "means for packet switched communication col. 19, lines 58-66, and col. 21, lines 19-44).

Regarding to claim 63. Dent teaches a communication system as claimed in claim 63, wherein equal numbers of time slots in each frame are allocated to the data channel (see col. 2, lines 8-27) for circuit switched communications and the data channel for packet switched communications (see col. 1, lines 53-61).

Regarding to claim 64. Dent teaches a communication system as claimed in claim 63, wherein half the number of slots are allocated to the data channel (see col. 2, lines 8-27) for packet switched communications are allocated to the data channel for circuit switched communications (see col. 1, lines 53-61, col. 18, lines 44-60).

Regarding to claim 65. Dent teaches a communication system as claimed in claim 63, wherein a quarter of the number of slots are allocated to the data channel (see col. 2, lines 8-27) for packet switched communications are allocated to the data channel for circuit switched communications (see col. 6, lines 38-65, "when factor is 4, frame-length/slot is 32 means quarter rate 1/4" and col. 15, line 53-to-col. 16, line 7).

Regarding to claim 66. Dent teaches a communication system as claimed in claim 63, wherein the data channel for circuit switched communications is a half rate data channel (see col. 1, lines 53-61, col. 18, lines 44-60).

Regarding to claim 67. Dent teaches a communication system as claimed in claim 63, wherein the data channel for circuit switched communications is a quarter rate data channel (see col. 6, lines 38-65, "when factor is 4, frame-length/slot is 32 means quarter rate 'h' and col. 15, line 53-to-col. 16, line 7).

Regarding to claim 68. Dent teaches a communication system as claimed in claim 63, wherein the data channel for packet switched communications is a half rate data channel (see col. 1, lines 53-61, col. 18, lines 44-60).

Regarding to claim 69. Dent teaches a communication system as claimed in claim 63, wherein control data for control of the data channel for packet switched communications is carried by the data channel for circuit switched communications (see col. 5, line 10-49).

Regarding to claim 70. Dent teaches a communication system as claimed in claim 63, wherein the control data is for control of transmission power and/or handover of the channel (see col. 17, lines 3-16).

Regarding to claim 71. Dent teaches a communication system as claimed in claim 70, wherein the control data comprises a fast access control channel and/or a slow access control channel (see col. 5, line 10-49).

Regarding to claim 72. Dent teaches a communication system as claimed in claim 63, wherein the data channel for circuit switched communications is a

conversational channel (see col. 5, lines 10-49, col. 14, lines 18-29, and col. 18, line 18-34).

Regarding to claim 73. Dent teaches a communication system as claimed in claim 63, wherein the data channel for circuit switched communications is a background channel (see col. 8, line 40-to-col. 9, line 16, and col. 12, lines 26-54).

Regarding to claim 74. Dent teaches a communication system as claimed in claim 63, wherein the data channel for packet switched communications is allocated time slots during periods when the data channel for circuit switched communications is relatively inactive (see col. 22, line 65-to-col. 23, line 24).

Regarding to claim 75. Dent teaches a communication system as claimed in claim 75, wherein the data channel for packet switched communications is allocated time slots (see col. 2, lines 8-27) during lulls in speech data being carried by means of the data channel for circuit switched communications (see col. 22, line 65-to-col. 23, line 24).

Regarding to claim 76. Dent teaches a communication system as claimed in claim 63, wherein the circuit switched channel is via a circuit switched core network of the communication system (see Fig. 11, col. 19, lines 58-66, PSTN means circuit switched communications).

Regarding to claim 78. Dent teaches a communication system as claimed in claim 78, wherein each full or half rate data channel for packet switched communications is a streaming, interactive or background channel (see col. 8, line 40-to-col. 9, line 16, and col. 12, lines 26-54).

Regarding to claim 79. Dent teaches a communication system as claimed in claim 78, wherein each full, half or quarter rate data channel for circuit switched communications is a conversational channel (see col. 5, lines 10-49, col. 14, lines 18-29, and col. 18, line 18-34).

Regarding to claims 80, 87, 93, 100 and 104 Dent teaches system has a mode of operation in which said wireless channel comprises first and second sub-channels; said first sub-channel comprising a half rate data channel for circuit switched communication (see col. 9, line 17-to-col. 10, line 26; and said second sub-channel comprising a half rate data channel for packet switched communication (see col. 9, line 17-to-col. 10, line 26).

Regarding to claims 81, 88 and 94 Dent teaches system has a mode of operation in which said wireless channel comprises first, second, third and fourth sub-channels each comprising a quarter rate data channel for circuit switched communication (see col. 6, lines 38-65, "when factor is 4, frame-length/slot is 32 means quarter rate '1/4'" and col. 15, line 53-to-col. 16, line 7).

Regarding to claims 82, 89 and 95 Dent teaches system has a mode of operation in which said wireless channel comprises first, second and third sub-channels (see col. 9, line 17-to-col. 10, line 26); said first sub-channel comprising a quarter rate data channel for circuit switched communication (see col. 9, line 17-to-col. 10, line 26); said second sub-channel comprising a quarter rate data channel for circuit switched communication (see col. 9, line 17-to-col. 10, line 26, and col. 6, lines 38-65, and col. 15, line 53-to-col. 16, line 7); and said third sub-channel comprising a half rate data

channel for packet switched communication (see col. 1, lines 53-61, col. 18, lines 44-60).

Regarding to claim 83. Dent teaches a communication system according to claim 78, wherein said system has a mode of operation in which said wireless channel comprises first, second and third sub-channels; said first sub-channel comprising a quarter rate data channel for circuit switched communication (see col. 9, line 17-to-col. 10, line 26); said second sub-channel comprising a quarter rate data channel for circuit switched communication (see col. 9, line 17-to-col. 10, line 26, and col. 6, lines 38-65, and col. 15, line 53-to-col. 16, line 7); and said third sub-channel comprising a half rate data channel for packet switched communication (see col. 1, lines 53-61, col. 18, lines 44-60).

In regards to claim 44, Dent does not explicitly teach, time slots in each frame are allocated to the data channel for circuit switched communications and the data channel for packet switched communications.

Chang in the same field of endeavor teaches time slots in each frame being allocated to the data channel for circuit switched communications and the data channel for packet switched communications (section 0155-0156).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Dent's system/method by incorporating the concept of time slots in each frame being allocated to the data channel for circuit switched communications and the data channel for packet switched communications as taught by Chang. The motivation is that the ability to send both circuit switched data and packet

switched data within same frame makes the system robust and enables efficient use of bandwidth. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

Dent and Chang do not teach allocating equal number of time slots being allocated for circuit switched and data switched communication.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Dent and Cheng's system/method by incorporating the concept of allocating equal number of time slots being allocated for circuit switched and data switched communication as any arbitrary number of time slots can be allocated for both packet and circuit switched communication based on network need, available resources and contracted quality of service; to make efficient use of the available bandwidth. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

Response to Arguments

6. Applicant has provided no arguments, in response to Office Action section, filed 7/17/2007, with respect to the rejections of the claims.
7. Examiner acknowledges the receipt of IDS filed 7/16/2008.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SALMAN AHMED whose telephone number is (571)272-8307. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on (571)272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Salman Ahmed/

Examiner, Art Unit 2419